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Neosporidesmium wuyishanense sp. nov. from southern China, and a first Chinese record of *Morrisographium ulmi*

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ABSTRACT—A new species, *Neosporidesmium wuyishanense*, is described and illustrated from specimens collected on dead stems in Fujian Province. It differs from other *Neosporidesmium* species by its ellipsoidal or obclavate, 3–6-distoseptate conidia. *Morrisographium ulmi* is newly recorded from China.

KEY WORDS—hyphomycetes, taxonomy

Introduction

The genus *Neosporidesmium* Mercado & J. Mena was established by Mercado Sierra & Mena Portales (1988) for a single species, *N. maestrense*. Subsequently eleven other species have been described: *N. antidesmatis* Jian Ma & X.G. Zhang, *N. appendiculatum* I.B. Prasher & R.K. Verma, *N. diaoluoshanense* Xiang Y. Li & X.G. Zhang, *N. macrosporum* Prasher & R.K. Verma, *N. malloti* Jian Ma & X.G. Zhang, *N. micheliae* Y.D. Zhang & X.G. Zhang, *N. microsporum* W.P. Wu, *N. sinense* W.P. Wu, *N. subramanianii* Melnik et al., *N. vietnamense* Melnik & U. Braun, and *N. xanthophylli* Jian Ma & X.G. Zhang (Li et al. 2015, Ma et al. 2011, Mel'nik & Braun 2013, Mel'nik et al. 2016, Prasher & Verma 2014, 2015; Wu & Zhuang 2005, Zhang et al. 2011). Seven of these species have been recorded from China: *N. antidesmatis*, *N. diaoluoshanense*, *N. malloti*, *N. micheliae*, *N. microsporum*, *N. sinense*, and *N. xanthophylli*.

The genus is characterized by unbranched conidiophores aggregating into erect, cylindrical, dark brown to black synnemata, and integrated, terminal, monoblastic, lageniform or doliiform, determinate or percurrently extending conidiogenous cells that produce solitary, pale brown to brown, ellipsoidal or obclavate, smooth, distoseptate conidia. The criteria used for species delimitation are based mainly on proliferation of conidiogenous cells, conidial morphology, and overall conidiomatal size (Mercado & Mena 1988; Wu & Zhuang 2005).

During our ongoing survey of fungi associated with woody debris in subtropical forests of Fujian Province, two conidial fungi were collected on dead stems. One of them, with morphological characteristics of *Neosporidesmium* (Mercado Sierra & Mena Portales 1988), is described here as a new species, *N. wuyishanense;* the other is identified as *Morrisographium ulmi,* a new record from China. Specimens are conserved in the Herbarium of the Department of Plant Pathology, Shandong Agricultural University, Taian, China (HSAUP) and Herbarium Mycologium, Chinese Academy of Sciences, Beijing, China (HMAS).

Neosporidesmium wuyishanense H.H. Li & X.G. Zhang, **sp. nov.** FIG. 1

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Differs from other *Neosporidesmium* species by its ellipsoidal or obclavate conidia.

TYPE: China, Fujian Province: Wuyishan, on dead stems of an unidentified broadleaf tree, 22 Apr. 2016, J.W. Xia (**Holotype**, HSAUP H10373; **isotype**, HMAS 245640).

ETYMOLOGY: *wuyishanense*, in reference to the type locality, Wuyishan.

COLONIES on the natural substrate effuse, dark brown, hairy. Mycelium partly superficial, partly immersed in the substratum. CONIDIOMATA synnematous, solitary, erect, dark brown to black, cylindrical, becoming narrower towards the apex, ≤1290 µm high and 120 µm diam. at the often swollen base. CONIDIOPHORES macronematous, synnematous, unbranched, septate, smooth, brown to dark brown, ≤1290 × 3.5–7.5 µm, diverging laterally and also terminally. CONIDIOGENOUS CELLS monoblastic, integrated, terminal, percurrent, determinate, smooth, ellipsoidal, brown to dark brown, 21–26.5 × 5–9 µm. CONIDIA holoblastic, solitary, dry, acrogenous, ellipsoidal or obclavate, 3–6-distoseptate, smooth wall, brown, apical cell pale brown, 30–60 × 5–9 µm.

COMMENTS—*Neosporidesmium wuyishanense* superficially resembles *N. micheliae,* which differs by its broader (8.5–11 µm), obclavate conidia with more distosepta (7–8; Zhang et al. 2011).

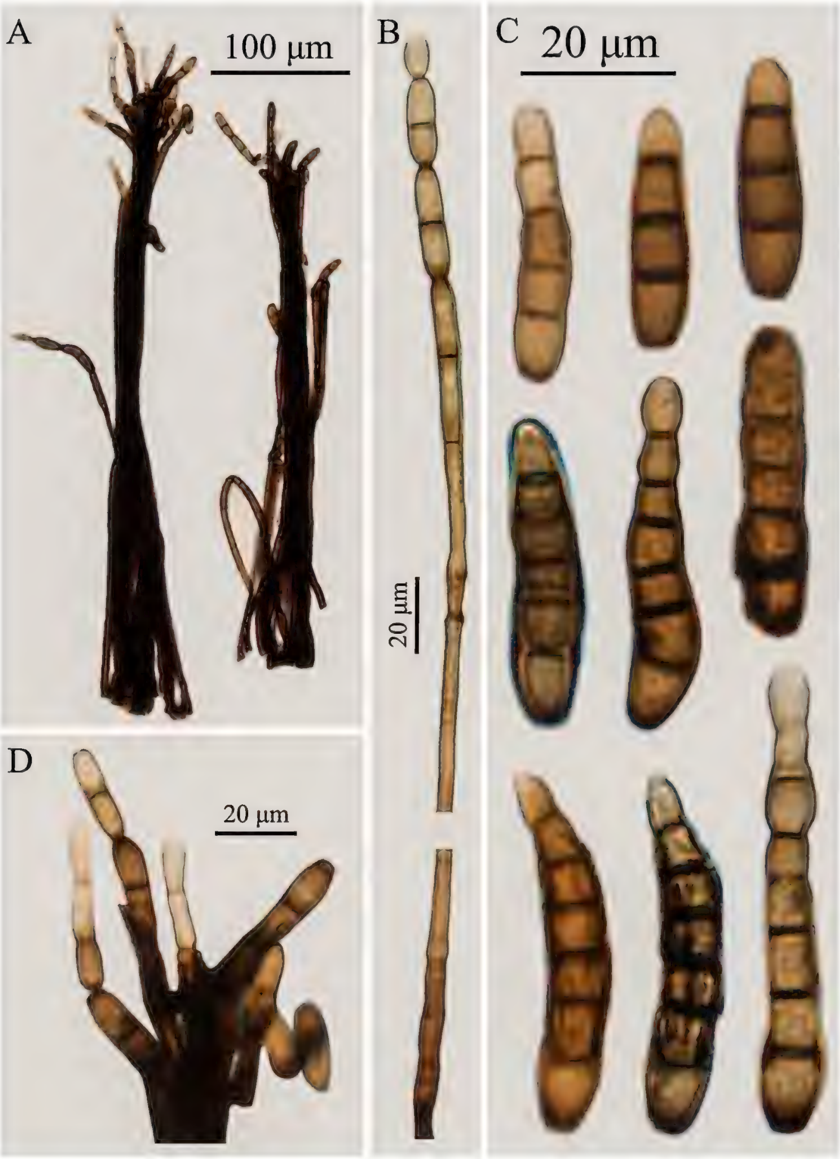

Fig. 1. *Neosporidesmium wuyishanense* (holotype, HSAUP H10373).
A. Synnema; B. Conidiophore, conidiogenous cell, and developing conidium;
C. Conidia; D. Conidiogenous cells.

Morrisographium ulmi (E.F. Morris) Illman & G.P. White,
Can. J. Bot. 63: 424. 1985. FIG. 2
≡ *Phragmographium ulmi* E.F. Morris, Mycopath. Mycol. Appl. 28: 99, 1966.

SYNNEMATA dark brown to black, ≤325.5 µm high, cylindrical or sometimes flaring-out at apices, 12–59 µm diam. at the base. Inner fertile region composed of hyaline or pale, septate, branched hyphae, outer sterile region composed of dark brown, parallel, unbranched, septate hyphae. CONIDIA solitary, acrogenous, fusiform to falcate, mucoid, 6–9-septate, 58–76 × 2.5–2.7 µm.

SPECIMEN EXAMINED: CHINA, FUJIAN PROVINCE: Jiuxianshan, on dead stems of an unidentified broadleaf tree, 26 Apr. 2016, J.W. Xia (HSAUP H10371).

COMMENTS – *Phragmographium* E.F. Morris was erected by Morris (1966) with *P. ulmi* as the type species; however this genus is regarded as an illegitimate later near-homonym of *Phragmographium* Henn., as pointed out by Morelet (1968), who proposed *Morrisographium* M. Morelet as a substitute name, typified by *M. pilosum* (Earle) M. Morelet [≡ *Isariopsis pilosa* Earle; ≡ *P. pilosum* (Earle) E.F. Morris; = *M. persicae* (Schwein.) Illman & G.P. White]. This different typification was based on an erroneous opinion by Jong & Morris (1968) that: (1) *P. ulmi* was a synonym of the prior name *P. pilosum*; and (2) that *P. pilosum*'s priority somehow made it the "replacement" type species of the genus *Phragmographium*. This error was resolved by Illman & White's (1985) revision of *Morrisographium*, which demonstrated that *M. ulmi* and *M. pilosum* represented different species. *Morrisographium* is therefore a new genus [gen. nov.] typified by *M. pilosum*, and not (as Morelet intended) a replacement name [nom. nov.] for *Phragmographium* (typified by *P. ulmi*). *Morrisographium* is mainly characterized by erect, simple, dark synnemata with stipe and head and comprising a central cylinder of fertile hyphae with a cortex of sterile hyphae and conidia that are multiseptate, fusiform to falcate, mucoid, and produced singly and acrogenously at apices of conidiophores.

Morrisographium ulmi is reported for the first time from China. The Chinese specimen closely matches previous descriptions, except that the type material has longer synnemata (700 µm, Morris 1966; Illman & White 1985).

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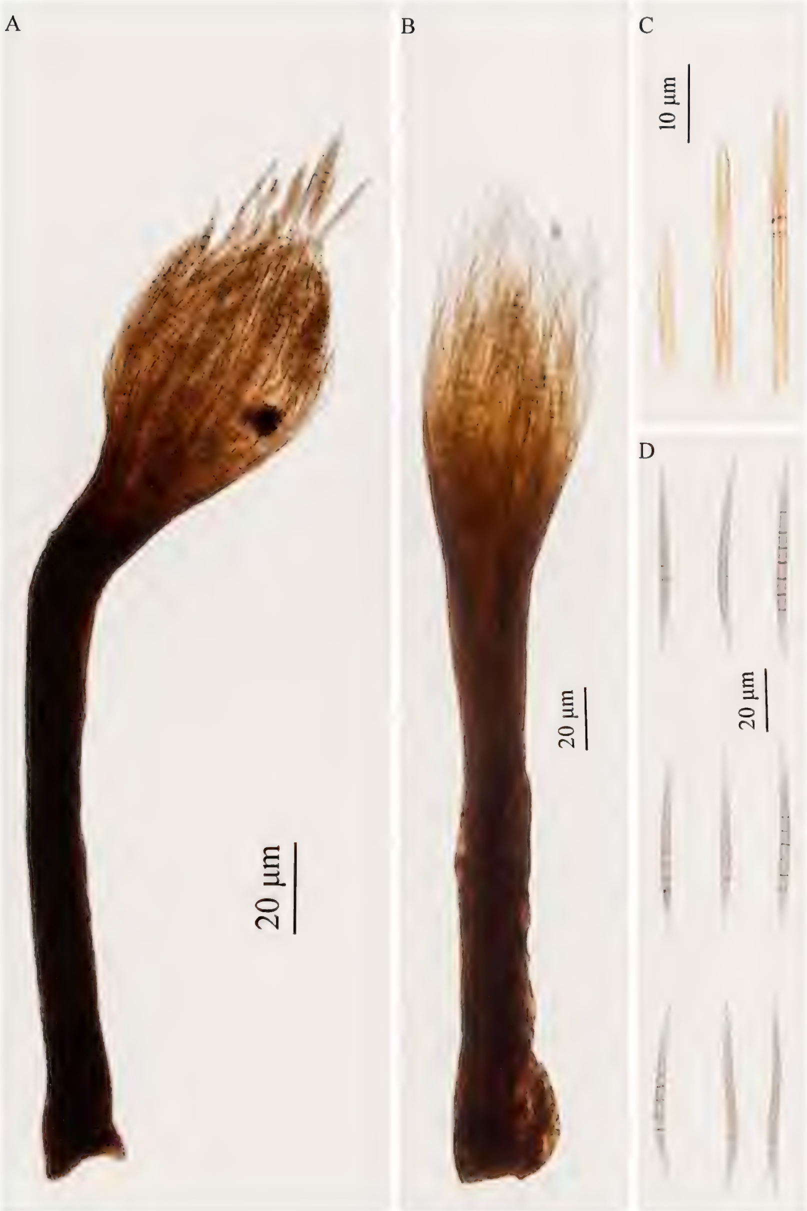

Fig. 2. *Morrisographium ulmi* (HSAUP H10371).
A, B. Synnema; C. Conidiogenous cells; D. Conidia.

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